

Applicants: Barry D. Allen

Serial No.: 09/923,254

Filing Date: August 2, 2001

For: Process to Convert Oxidizers to Nitric Acid

Art Unit: 1754

Confirmation No.: 2536

Examiner: Wayne A. Langel

Attorney Docket No.: AMPC 5003

IN THE CLAIMS

I claim:

1. (currently amended) A process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid in concentrations of approximately 98% to 1% without the removal of any or all common inhibitors, said process comprising completing the process steps of a-e as follows:
 - a. providing a separate storage tanks for an oxidizer ~~selected from the group consisting of~~ comprising inhibited red fuming nitric acid (IRFNA-N₂O₄) containing inhibitors and an oxidizer comprising nitrogen tetroxide (N₂O₄), said storage tanks designated as T1 and T2 respectively, said inhibitors comprising HF, H₃PO₄, and I₂;
 - b. passing said IRFNA-N₂O₄ from said tank T1 through a filter F2 to separate waste to waste tank W1;
 - c. passing filtrate from said filter F2 through piping means wherein H₃PO₄ is adjusted via a tank T5 to approximately 5-6 times the HF content in the HNO₃ with inhibitors;

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- d. transferring said HNO_3 with inhibitors and added H_3PO_4 to reactor R1 for distillation and further processing; and,
 - e. distilling N_2O_4 from said reactor R1 to a tank T3.
2. (currently amended) A process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid ~~in concentrations of approximately 98% to 1%~~ with the removal of any or all common inhibitors, said process comprising completing the process steps of a-g as follows:
- a. providing ~~a separate storage tanks~~ for an oxidizer ~~selected from the group consisting of~~ comprising inhibited red fuming nitric acid (IRFNA- N_2O_4) containing inhibitors and an oxidizer comprising nitrogen tetroxide (N_2O_4), said storage tanks designated as T1 and T2 respectively, said inhibitors comprising HF , H_3PO_4 , and I_2 ;
 - b. passing said IRFNA- N_2O_4 from said tank T1 through a filter F2 to separate waste to waste tank W1;
 - c. passing filtrate from said F2 through piping means wherein H_3PO_4 is adjusted via a tank T5 to approximately 5-6 times the HF content in concentrated HNO_3 with inhibitors; which is transferred to reactor R1 for distillation;
 - d. distilling N_2O_4 from said filtrate to a tank T3;

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- e. transferring said filtrate remaining to a reactor tank R2;
 - f. distilling HNO_3 from said reactor tank R2 to a tank T4
for containing HNO_3 98% + for further processing; and ,
 - g. transferring the waste from said reactor tank R2 to
waste with inhibitors tank W2.
3. (currently amended) The process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid ~~concentrations of approximately 98% to 1%~~ without the removal of any or all common inhibitors as defined in claim 1 wherein said HNO_3 with inhibitors and added H_3PO_4 is transferred to a HNO_3 storage tank P1.
4. (currently amended) The process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid ~~in concentrations of approximately 98% to 1%~~ without the removal of any or all common inhibitors as defined in claim 1 wherein said HNO_3 with inhibitors and added H_3PO_4 is transferred to a mixer tank M1 reactor wherein said HNO_3 with inhibitors and added H_3PO_4 is diluted with H_2O prior to being transferred to a HNO_3 storage tank P1.
5. (currently amended) The process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid ~~in concentrations of approximately 98% to 1%~~ with the removal

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of any or all common inhibitors as defined in claim 2 wherein said HNO_3 98% + is transferred to a HNO_3 98% tank P2.

6. (currently amended) The process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid ~~in concentrations of approximately 98% to 1%~~ with the removal of any or all common inhibitors as defined in claim 2 wherein said HNO_3 98% + is transferred to a mixer tank M2 wherein said HNO_3 98% is diluted with H_2O prior to being transferred to a HNO_3 dilute tank P3.
7. (currently amended) The process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid ~~in concentrations of approximately 98% to 1%~~ with the removal of any or all common inhibitors as defined in claim 2 wherein said N_2O_4 is transferred from said tank T3 to a N_2O_4 reactor R3 and wherein said HNO_3 98%+ is transferred from said tank T4 to said N_2O_4 reactor R3 for further reacting under pressure of from 1 to 5 atmospheres with $\text{H}_2\text{O}/\text{H}_2\text{O}_2$ and air/ O_2 to yield HNO_3 98%+.
8. (currently amended) The process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid ~~in concentrations of approximately 98% to 1%~~ with the removal of any or all common inhibitors as defined in claim 7 wherein said HNO_3 98%+ is transferred to HNO_3 98%+ tank P2.

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9. (currently amended) The process for conversion of oxidizers to concentrated nitric acid or dilute nitric acid with the removal of any or all common inhibitors as defined in claim 7 wherein said HNO_3 98%+ ~~is transferred to~~ HNO_3 98%+ is transferred to a mixer tank M3 wherein said HNO_3 98% is diluted with H_2O prior to being transferred to a HNO_3 dilute tank P3.